APR/FY06

IOWA ARMY AMMUNITION PLANT

Iowa

Army Defense Environmental Restoration Program Installation Action Plan

Final 27 September 2006

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Statement of Purpose

The purpose of the Installation Action Plan (IAP) is to outline the total multi-year Cleanup Program for an installation. The plan identifies environmental cleanup requirements at each site or area of concern, and proposes a comprehensive, installation-wide approach, with associated costs and schedules, to conduct investigations and necessary remedial actions.

In an effort to coordinate planning information between the, US Army Environmental Center (USAEC), Iowa AAP (IAAAP) and executing agencies, an IAP was completed. The IAP is used to track requirements, schedules and tentative budgets for all Army installation cleanup programs.

All site-specific funding and schedule information has been prepared according to projected overall Army funding levels and is, therefore, subject to change.

The following agenciss contributed to the formulation and completion of this Installation Action Plan during a planning workshop held on 27 April 06:

Company/Installation/Branch
AOLLC @ IAAAP
Engineering & Environment, Inc.
IAAAP
MKM Engineers
RDECOM-ARDEC for PEO-AMMO
Tetra Tech
USAEC

Acronyms & Abbreviations

AAP	Army Ammunition Plant
AEDB-R	Army Environmental Data Base-Restoration (formerly DSERTS)
AO	American Ordnance, LLC
AEC	Atomic Energy Commission
bgs	Below Ground Surface
CAMU	Corrective Action Management Unit
CEA	Cap Extension Area
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CEWES	Corps of Engineers Waterways Experiment Station
CTC	Cost-to-Complete
CWP	Contaminated Waste Processor
cy	cubic yards
DERA	Defense Environmental Restoration Account (now ER,A)
DERP	Defense Environmental Restoration Program
DNT	Dinitrotoluene
DOE	Department of Energy
DSERTS	Defense Site Environmental Restoration Tracking System (now AEDB-R)
EDA	Explosive Disposal Area
EE/CA	Engineering Evaluation/Cost Analysis
EPA	Environmental Protection Agency
ER,A	Environmental Restoration, Army (formerly DERA)
ESD	Explanation of Significant Differences
EWI	Explosive Waste Incinerator
FFA	Federal Facilities Agreement
FS	Feasibility Study
FUSRAP	Formerly Utilized Sites Remedial Action Program
FY	Fiscal Year
GOCO	Government-owned, contractor-operated
GW	Groundwater
HRS	Hazard Ranking Score
IAAAP	Iowa Army Ammunition Plant
IAP	Installation Action Plan
IDA	Inert Disposal Area
InDA	Incendiary Disposal Area
IRA	Interim Remedial Action
IRP	Installation Restoration Program
LAP	Load, Assemble, Pack
LTM	Long-term Management
LTTD	Low Temperature Thermal Desorption
MCL	Maximum Contaminant Level
MC	Munitions Constituents
MEC	Munitions and Explosives of Concern

Acronyms & Abbreviations

MKM	MKM Engineers, Inc.
MMRP	Military Munitions Response Program
MW	Monitoring Well
NFA	No Further Action
NPL	National Priorities List
OB/OD	Open Burning/Open Detonation
OU	Operable Unit
PA	Preliminary Assessment
PBC	Performance Based Contract
PCB	Polychlorinated Biphenyl
PCP	Pentachlorophenol
PEP	propellant, explosives
POL	Petroleum, Oil & Lubricants
ppm	Parts Per Million
RA	Remedial Action
RA(C)	Remedial Action (Construction)
RA(O)	Remedial Action (Operation)
RAB	Restoration Advisory Board
RAC	Risk Assessment Code
RAD	Radionuclides
RBCA	Risk Based Corrective Action
RC	Response Complete
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RDX	Royal Demolition Explosive (Hexahydro-1,3,5-trinitro-1,3,5-triazine) also known as cyclonite
REM	Removal
RI	Remedial Investigation
RIP	Remedy in place
ROD	Record of Decision
RRSE	Relative Risk Site Evaluation
S&A	Supervision & Administration
SI	Site Inspection
SVOCs	Semi-Volatile Organic Compounds
SWMU	Solid Waste Management Unit
TAPP	Technical Assistance for Public Participation
TNT	Trinitrotoluene
TRC	Technical Review Committee
ug/L	micrograms per liter
USACE	United States Army Corps of Engineers
USACHPPM	United States Army Center for Health Promotion and Preventive Medicine

Acronyms & Abbreviations

USAEC	United States Army Environmental Center
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VOCs	Volatile Organic Compounds
WBPLF	West Burn Pads Landfill

Installation Information

Installation Locale: IAAAP is located adjacent to Middletown, Des Moines County, Iowa. Iowa AAP is approximately 8 miles west of the largest city in Des Moines County, Burlington, with an estimated population of 27,208 people. The installation consists of 19,011 acres.

Installation Mission: IAAAP is an active Joint Munitions Command facility operated by the civilian contractor, American Ordnance LLC. IAAAP's current mission is to load, assemble and pack (LAP) ammunition items, including projectiles, mortar rounds, warheads, demolition charges, and munitions components such as fuzes, primers, and boosters.

Lead Organization:
Army Materiel Command

Lead Executing Agency:
Iowa AAP

Regulatory Participation
Federal: U.S. Environmental Protection Agency, Region VII Federal Facilities and Special Emphasis Branch, Superfund Division
U.S. Fish and Wildlife Service
State: Iowa Department of Natural Resources

National Priorities List (NPL) Status: NPL Installation Site with Federal Facilities Compliance Agreement under CERCLA Section 120, HRS Score 29.73

Projected Dates for Construction Completion: 200908

Projected Date for NPL Removal: Unknown

Installation Restoration Advisory Board (RAB)/Technical Review Committee (TRC)/Technical Assistance for Public Participation (TAPP) Status: The Iowa AAP has an active Restoration Advisory Board.

Installation Restoration Program (IRP) Summaries
Primary Contaminants of Concern: MC, Metals, SVOCs, VOCs, Freon
Affected Media of Concern: Soil, Groundwater, Surface Water, Sediment
Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 2011/2039
Funding to date (through FY05): $ 89,400,190
Current year funding (FY06): $ 5,713,955
Cost-to-Complete (FY07+): $ 16,602,000

MMRP

Primary Contaminants of Concern: MEC
Affected Media of Concern: Soil
Estimated Date for RIP/RC: 2017/2017
Funding to date (up to FY05): $0
Current year funding (FY06): $152,503
Cost-to-Complete (2007+): $4,255,000

Cleanup Program Summary

Installation Historic Activity

IAAAP was founded in 1941 and has undergone modernization and expansion. Production of supplies for World War II began in September 1941 and ended in August 1945. From 1946 to 1951, the IAAAP was operated by the government to produce ammonium nitrate and store munitions. Ammunition production resumed in 1949 and has continued to the present. The former Atomic Energy Commission operated facilities on the site from 1947 to 1975.

IRP

- Prior Year Progress: A performance based contract has been awarded to bring all of the IRP sites to RIP/RC.
- Future Plan of Action: The Installation plans to complete soil removal for OU1, treat soil at IAAP-020, finalize the RD for off-site groundwater, complete the supplemental RI for OU4 soils within the next two years.

MMRP

- Prior Year Progress: Preliminary Assessment (PA) completed at all sites.
- Future Plan of Action: The installation plans to complete the Supplemental SI in 2007 and Remedial Investigations/ Feasibility Studies (RI/FS) by 2015 and execute follow on phases/actions as required in the individual site cleanup strategies.

IOWA ARMY AMMUNITION PLANT

Installation Restoration Program

IRP Summary

Total AEDB-R IRP Sites / AEDB-R sites with Response Complete: 53/28

Different Site Types:

5 Burn Areas	2 Contaminated Buildings	1 Contaminated Groundwater
3 Disposal Pit/ Dry Wells	1 Fire/Crash Training Area	4 Explosive Ordnance Disp.
1 Incinerator	5 Industrial Discharges	6 Landfills
1 Mixed Waste Area	1 Oil Water Separator	11 Spill Site Areas
3 Storage Areas	2 Surface Disposal Areas	3 Waste Treatment Plants
3 Surface Impoundment/Lagoons	1 Underground Storage Tank	

Most Widespread Contaminants of Concern: MC, Explosives, Metals, SVOCs, VOCs, Freon

Media of Concern: Soil, Groundwater, Surface Water, Sediment

Completed Removal (REM)/Interim Remedial Action (IRA)/Remedial Action (RA):

1993	REM: Coal Pile	$ 22.7K
1995	Pesticide Pit	$ 638.6K
1995	Explosive Sump Removal	$ 991.8K
1997	Former Line 1 Impoundment/Line 800 Pinkwater Lagoon	$13,540.4K
1997	Remove & Dispose Blue Sludge	$25.8K
1998	North Burn Pads	$ 800.0K
1998	North Burn Pads Landfill	$ 2,200.0K
1998	East Burn Pads	$ 2,000.0K
2000	West Burn Pads	$4,297.9K
2000	Removal of Soil around Production Buildings 5A & 5B	$2,541.0K
2001	Alternative Water Supply, Off-Post Residents (1994 & 2001)	$ 309.3K
2002	Former Fuel Station USTs	$276.2K
2003	Fire Training Pit	$1,628.9K
2004	Line 9 Soil Removal	$1,405.6K
2004	Roundhouse (NFA)	$2,265.0K
2004	Line 8 (NFA)	$1,207.3K
2004	Line 4A/4B (NFA)	$1,241.4K
2004	Demo Area/Deactivation Furnace (DERP costs only)	$682.2K

Total IRP Funding

Prior years (up to FY05):	$ 89,400,190
Current year funding (FY06):	$ 5,713,955
Future Requirements (FY07+):	$ 16,602,000
Total:	$111,716,140

Duration of IRP

Year of IRP Inception: 1989
Year of IRP RIP/RC: 2011/2039
Year of IRP Completion including Long-Term Management (LTM): 2039

IRP Contamination Assessment

IAAAP is located on U.S. Highway 34 approximately 8 miles to the west of Burlington, IA. The facility is a government-owned, contractor-operated (GOCO) military industrial installation under the jurisdiction of the U.S. Army Joint Munitions Command, headquartered in Rock Island, Illinois. Its primary mission is to manufacture, load, assemble and pack ammunition items.

IAAAP was established in July 1941 as the Iowa Ordnance Plant. The plant's mission was to load, assemble, and pack ammunition. It produced munitions for World War II until August 1945. Plant operations reverted to U.S. Army control from 1946 until 1951 with a mission of ammunition storage and surveillance. The former Atomic Energy Commission occupied portions of the IAAAP from 1947 to 1975. The plant has been a GOCO since 1951 when Mason and Hanger-Silas Mason Co., Inc. began operations. The IAAAP is currently an active installation.

The primary source of contamination at the site is attributable to past operating practices in which explosives-contaminated wastewater and sludge were discharged to uncontrolled on-site lagoons and impoundments. Additional sources of contamination included open burning of explosives materials and munitions, and land filling of waste material. Process wastewaters currently are treated and recycled, while only a small portion of the treated wastewater, containing residual explosives and other contaminants regulated under the plant's NPDES permit, is discharged to surface.

The installation was proposed for the NPL in August 1989 due to surface water contaminated with explosives leaving the installation boundary. IAAAP's Hazard Ranking Score (HRS) is 29.73. A Federal Facility Agreement (FFA) was signed by the U.S. Environmental Protection Agency (USEPA) Region VII and the U.S. Army in September 1990 and became effective in December of 1990.

The FFA originally listed 30 Solid Waste Management Units (SWMUs) as IAAP-1 through IAAP-30; these sites are represented in AEDB-R as sites IAAP-001 through IAAP-030. The Deactivation Furnace Site, IAAP-023, has been merged with the Demolition Area Site, IAAP-021, because it is located within confines of the Demolition Area. Since publication of the FFA, sites IAAP-031 through IAAP-043 were identified in the February 1991 United States Army Toxic and Hazardous Material Agency Draft Potential Areas of Concern Supplement document. Sites IAAP-032 through IAAP-035 were collectively listed under the number IAAP-032 because of close location to one another. The Line 800 Pinkwater Lagoon was added as IAAP-044 (Remedial Investigation, JAYCOR & ICAIR Lifesystems, 21 May 1996). Former Fuel Station USTs (IAAP-045) was added in the fall 1999 AEDB-R submission. This site was separated from IAAP-006 to better manage the soil and groundwater cleanup efforts from the 1988 LUST removal. Sites IAAP-046 and IAAP-047 were created to address the Off Post Groundwater and the Central Test Area respectively.

The PA/SI was conducted in 1991. The Site Wide RI was completed in 1996.

IRP Contamination Assessment

The Interim Operable Unit (OU) 1 Soils Recod of Decision (ROD), signed in March 1998, addressed the excavation, relocation and placement of contaminated soils from fifteen sites to the Inert Disposal Area, IAAP-020.

The Final Soils ROD, signed in September 1998, addresses the treatment of the most highly contaminated fraction of that soil.

In July 2002, portions of the IAAAP used by the former AEC were designated by the U.S. Army Corps of Engineers (USACE) to be under the Formerly Utilized Sites Remedial Action Program (FUSRAP). Thus far, seven areas have been identified as "FUSRAP" areas. These areas include Line 1 (IAAP-001), Firing Sites Area (IAAP-030), West Burn Pads Area [south of the road] (part of IAAP-032), Warehouse 3-01 (located in IAAP-003), Yard G, Yard C, and Yard L (near Warehouse L-1, -2, -3). Additionally, four areas were screened by FUSRAP in 2004 to determine if radiological contaminates from AEC are present. These "Screening" areas include the Inert Disposal Area (IAAP-020), Demolition Area/Deactivation Furnace (IAAP-021), Former Line 1 Impoundment (IAAP-016), and the Explosive Disposal Area. The Explosive Disposal Area includes the North Burn Pads (IAAP-036), North Burn Pads Landfill (IAAP-037), West Burn Pads [Area south of road] (part of IAAP-032), and the East Burn Pads (part of IAAP-032). If radiological contamination attributable to the AEC is found at a "Screening" area, this area will be added to the "FUSRAP" areas list. The Corps will respond to all releases and threats of releases of hazardous substances, pollutants, or contaminates, with the exception of ground and surface water contamination, at all "FUSRAP" areas.

In FY02, nine "G" designated sites were created to better manage groundwater clean-up. They were IAAP-002G, IAAP-003G, IAAP-004G, IAAP-010G, IAAP-012G, IAAP-020G, IAAP-032G, IAAP-039G and IAAP-044G. Two other sites, IAAP-011 and IAAP-044, were consolidated so they may be better managed as they are contiguous.

Three OUs are identified at the IAAAP. They are:

- Soils OU (#1) to address contamination in the soils
- Soils OU (#3) to address contamination of groundwater within the IAAAP boundaries and potentially off-site
- Installation-Wide OU (#4) to address closure of the Corrective Action Management Unit, institutional controls, previously unaddressed areas of soil contamination, surface water, VOC-contaminated media, ecological risks, long-term monitoring requirements, and any other unacceptable risks which may be identified and not addressed in either OU #1 or OU #3.

IRP Cleanup Exit Strategy

A Performance Based Contract (PBC) has been awarded to bring all the IRP sites to RIP/RC.

Previous Studies

1976
- Aquatic Field Survey, Iowa Army Ammunition Plant, U.S. Army Medical Research & Development Command, Nov-76.

1979
- Aerial Color Infrared Photography Interpretation, Iowa Army Ammo Plant, U. S. Army Toxic & Hazardous Materials Agency, Sep-79.

1980
- Installation Assessment of Iowa Army Ammunition Plant, U.S. Army Toxic & Hazardous Materials Agency, Jan-80.

1981
- Underground Pollution Investigation at Iowa Army Ammunition Plant, U.S. Army Toxic & Hazardous Materials Agency, Sep-81.

1982
- Contamination Survey, Iowa Army Ammunition Plant, U.S. Army Toxic & Hazardous Materials Agency, Jul-82.

1984
- Follow-On Study of Environmental Contamination at the Iowa Army Ammunition Plant, U. S. Army Toxic & Hazardous Materials Agency, Aug-84.

1985
- RCRA Facility Assessment of Iowa Army Ammunition Plant, U. S. Environmental Protection Agency, Region VII, Kansas City, Jun-85.
- Water Quality Engineering Consultation, Investigation of Groundwater Contamination, Iowa Army Ammunition Plant, U.S. Army Toxic & Hazardous Materials Agency, Sep-85.

1986
- Midwest Site Confirmatory Survey, Sampling Report for Iowa Army Ammunition Plant, U.S. Army Environmental Hygiene Agency, Aug-86.

1987
- Confirmatory Water Sampling, Iowa Army Ammunition Plant, U.S. Army Toxic & Hazardous Materials Agency, Jun-87.

1988
- Groundwater Quality Assessment, Iowa Army Ammunition Plant, U.S. Army Toxic & Hazardous Materials Agency, Jan-88.

1989
- Endangerment Assessment/Feasibility Study of Former Line 1 Impoundment and Line 800 Lagoon, U.S. Army Toxic & Hazardous Materials Agency, Jul/Aug 89.

Previous Studies

1990

- Petroleum Leak/Spill Area, Iowa Army Ammunition Plant, U.S. Army Toxic & Hazardous Materials Agency, Mar-90.

1991

- Draft Potential Areas of Concern Supplement, U.S. Army Toxic & Hazardous Materials Agency, Feb-91.
- Site Investigation of Iowa Army Ammunition Plant, U. S. Army Toxic & Hazardous Materials Agency, Jun-91.

1994

- Accelerated Ground Quality Assessment for the Ash Disposal Cell in Trench 5 and Line 6, Iowa Army Ammunition Plant, U. S. Army Environmental Center, Oct-94.

1995

- Letter Report Quarterly Groundwater Monitoring Results for Rounds 6, 7 and 8 Ash Disposal Cell in Trench 5, Iowa Army Ammunition Plant, U.S. Army Environmental Hygiene Agency, Aug-95.

1996

- Engineering Evaluation/Cost Analysis (EE/CA) Study Fire Training Pit Iowa Army Ammunition Plant, USACE, Omaha, Apr-96.
- Revised Draft Final Remedial Investigation Risk Assessment Iowa Army Ammunition Plant (11 Volumes), USACE, May-96.
- Information Summary for Focused Feasibility Study Sites, USACE, Omaha, Sep-96.
- Action Memorandum for the Line 800 Pink Water Lagoon, Former Line 1 Impoundment, USACE, Omaha, Oct-96.

1997

- Annual Report Semi-Annual Groundwater Monitoring of the Inert Disposal Area, Iowa Army Ammunition Plant, Industrial Operations Command, Rock Island, IL, Mar-97.
- Proposal Plan for Interim Action - Soils Operable Unit, U. S. Army Environmental Center, May-97.
- Draft Final Soils Focused Feasibility Study, U. S. Army Environmental Center, May-97.
- Action Memorandum for the Inert Landfill at the Iowa Army Ammunition Plant, USACE, Omaha, Sep-97.
- Ecological Risk Assessment Addendum Iowa Army Ammunition Plant, USACE, Omaha, Oct-97.
- Draft Final Feasibility Study for Operable Unit 1: Contaminated Soils, U. S. Army Environmental Center, Nov-97.
- Draft Environmental Protection Plan Iowa Army Ammunition Plant Focused Feasibility Study Soils Removal, USACE, Omaha, Nov-97.
- Fire Training Pit-Iowa Army Ammunition Plant Explanation of Significant Differences & Action Memorandum, USACE, Omaha, Dec-97.
- Supplemental Groundwater Remedial Investigation Report, USACE, Omaha, Dec-97.
- Groundwater Feasibility Study Report, USACE, Omaha, Dec-97.

Previous Studies

1998

- Quality Control Summary Report - Supplemental Groundwater Remedial Investigation, Harza Engineering Company, Chicago, IL, Jan-98.
- Draft Final Ecological Risk Assessment Addendum, USACE, Omaha, Mar-98.
- U. S. Army Interim Soils Action for Operable Unit #1 Record of Decision, USACE, Omaha, Mar-98.
- Draft Soils Feasibility Study Report, USACE, Omaha, Mar-98.
- Draft Proposed Plan for Operable Unit #1, USACE, Omaha, Mar-98.
- Draft ROD Non-Significant Differences, USACE, Omaha, Apr-98.
- Draft Final Proposed Plan for Operable Unit #1, USACE, Omaha, May-98.
- Draft Final Soils Feasibility Study Report, USACE, Omaha, May-98.
- Superfund Proposed Plan for OU #1, USACE, Omaha, Jun-98.
- Final Soils Feasibility Study Report, USACE, Omaha, Jun-98.
- Draft Record of Decision Soils OU #1, USACE, Omaha, Jul-98.
- Draft Interim Groundwater Study Report, USACE, Omaha, Aug-98.
- Final Record of Decision Soils OU #1, USACE, Omaha, Aug 98 (signed by EPA Sep 98).
- Demonstration Test Plan for Low Temperature Thermal Desorption of Explosive Soils, USACE, Omaha, Nov-98.
- Summary Report Pre-Designed Excavation Delineation at 5A/5B, Roundhouse RDX Site, IDA Storage Yard, Burning Grounds, USACE, Omaha, Dec-98.
- Draft Demonstration Test Summary of Results: LTTD of Explosive Contaminated Soils, USACE, Omaha, Dec-98.

1999

- Draft Final Report for Multiple Removal Actions, USACE, Omaha, Jan-99.
- Independent Technical Review Questionnaire Response, Iowa Army Ammo Plant, Jan-99.
- Supplemental Groundwater Remedial Investigation Report Line 800/Pinkwater Lagoon - Analytical Data Report, USACE, Omaha, Mar-99.
- Analytical Data Report - Supplemental Groundwater Remedial Investigation Line 800/Pink Water Lagoon, Harza Engineering Company, Chicago, IL, Mar-99.
- Annual Report Semiannual Groundwater Monitoring for Ash Disposal Cell in Trench 5 of the Inert Disposal Area, American Ordnance LLC, Middletown, Iowa, Mar-99.
- Draft Monitoring Well Management Plan, USACE, Omaha, Apr-99.
- Independent Technical Review Draft Recommendation Report, U. S. Army Environmental Center, Aberdeen Proving Ground, MD, May-99.
- Recommendations for Additional Remedial Investigation Line 800/Pinkwater Lagoon, Harza Engineering Company, May-99.
- Iowa AAP Public Health Assessment, Agency for Toxic Substances & Disease Registry, Atlanta, GA, Dec-99.

2000

- Technical Memorandum Supplemental Investigation Off-Site Groundwater, Surface Water & Sediment, Harza Engineering Company, Jan-00.

2000 *(continued)*

- RBCA Tier 2 Report (Revised), Trileaf Corporation, Ames, Iowa, Feb-00.
- Annual Report Semiannual Groundwater Monitoring for Ash Disposal Cell in Trench 5 of the Inert Disposal Area, TN & Associates, Oak Ridge, TN, Mar-00.
- Well Completion Report Fall 1999 Long Term Monitoring, Harza Engineering Company, Jun-00.
- Long Term Monitoring Report Fall 1999, Harza Engineering Company, Jun-00.
- Quality Control Summary Report - Groundwater Monitoring Program Fall 1999 Sampling Event, Harza Engineering Company, Jul-00.
- Well Completion Report Spring 2000 Groundwater Monitoring Event, Harza Engineering Company, Jul-00.
- Quality Control Summary Report - Off-Site Groundwater Investigation (OU3) Phase I, II, III, Harza Engineering Company, Sep-00.
- Eco-Risk Round 2 Sampling, Harza Engineering Company, Sep-00.
- Groundwater Monitoring Report Spring 2000, Harza Engineering Company, Oct-00.
- Final Remedial Action Report Fire Training Pit, Environmental Chemical Corporation, Burlingame, CA, Oct-00.
- Final Remedial Action Report Focused Feasibility Study Sites Remedial Action Phase I, Environmental Chemical Corporation, Burlingame, CA, Oct-00.

2001

- Line 1 & 800 Phytoremediation Monitoring, Phytoworks Incorporated, Gladwyn, PA, Feb-01.
- Annual Report Semiannual Groundwater (Including New Monitoring Well Installations) for Ash Disposal Cell in Trench 5 of the Inert Disposal Area, TN & Associates, Oak Ridge, TN, Feb-01.
- Iowa AAP Health Consultation, Agency for Toxic Substances & Disease Registry, Atlanta, GA, Mar-01.
- Iowa AAP Scoring Survey Plan Firing Site 6 & 12, U. S. Army Corps of Engineers, Omaha, NE, Apr-01.
- Fall 2000 Groundwater Monitoring Interim Report, URS Corporation, Omaha, NE, Apr-01.
- Fall 2000 Groundwater Monitoring Results Summary, URS Corporation, Omaha, NE, Apr-01.
- Draft Final Remedial Action Report Multiple Removal Actions, Environmental Chemical Corporation, Burlingame, CA, Apr-01.
- Final Remedial Action Report Focused Feasibility Study Sites Remedial Action Phase 2, Environmental Chemical Corporation, Burlingame, CA, Apr-01.
- Ecological Risk Assessment - Screening Level Risk Assessment, Harza Engineering Company, Apr-01.
- Quality Control Summary Report - Off-Site Groundwater Investigation (OU) Phase IV, Harza Engineering Company, May-01.
- Draft Final Technical Memorandum Evaluation of Contaminant Sources to Surface Streams, Harza Engineering Company, Jul-01.
- Supplemental Groundwater Remedial Investigation (1997) Revised Draft Final, Harza Engineering Company, Aug-01.

2001 *(continued)*

- Quality Control Summary Report Groundwater Monitoring Program Spring 2000 Sampling Event, Harza Engineering Company, Aug-01.
- Development of Dose Estimation Models and Toxicity Reference Values Ecological Risk Assessment, Harza Engineering Company, Aug-01.
- Screening Level Risk Assessment, Ecological Risk Assessment, Harza Engineering Company, Aug-01.
- Draft Final Groundwater Monitoring Program, Harza Engineering Company, Aug-01.
- FUSRAP Preliminary Assessment, USACE, Omaha, Sep-01.
- Interim Report Semiannual Groundwater Monitoring for Ash Disposal Cell in Trench 5 of the Inert Disposal Area, URS Corporation, Omaha, NE, Oct-01.
- Draft Final Excavation Report Focused Feasibility Study Sites Remedial Action West Burn Pads, Environmental Chemical Corporation, Burlingame, CA, Nov-01.
- Addendum to Screening Level Risk Assessment Ecological Risk Assessment, Montgomery Watson Harza, Chicago, IL, Dec-01.
- Final FUSRAP Preliminary Assessment, U. S. Army Corps of Engineers, St. Louis, MO, Dec-01.

2002

- Draft Final Fall 2000 Spring 2001 Groundwater Monitoring Report, URS Corporation, Omaha, NE, Feb-02.
- Draft Final Direct Push Field Investigation Technical Memorandum & Revised Work Plan Off-Site Remedial Investigation, URS Corporation, Omaha, NE, Apr-02.
- Draft Final Line 1 & FS Supplemental RI Report, TN & Associates, Oak Ridge, TN, Aug-02.
- Draft Final Report of Over Excavation for the Former Fuel Station, Trileaf Corporation, Ames, Iowa, Aug-02.
- Draft Final Remedial Action Report Focused Feasibility Soil Study Sites, Phase III, West Burn Pads Area, Cape Environmental, Irvine, CA, Dec-02.

2003

- Draft Final Technical Memorandum Groundwater Flow and Contaminate Fate & Transport Modeling Line 800 Pinkwater Lagoon, URS Corporation, Omaha, NE, Apr-03.
- Draft Final Line 800 Pinkwater Lagoon Feasibility Study, URS Corporation, Omaha, NE, Apr-03.
- Draft Final Off-Site Remedial Investigation Report, URS Corporation, Omaha, NE, Apr-03.
- Draft Final Spring 2002 Groundwater Monitoring Report, Hydrogeologic, Overland Park, KS, Aug-03.

2004

- Draft Final Version 3 Supplemental Remedial Investigation for The Incendiary Disposal Area, Fly Ash Waste Pile, Possible Demolition Area, Line 3A Pond, Explosive Waste Incinerator and Construction Debris Landfill, MKM Engineers, Inc., Jan-04.
- Final Line 9 Remedial Alternative Analysis, URS Corporations, Omaha, NE, Jan-04.
- Final Line 3 Remedial Alternative Analysis, URS Corporations, Omaha, NE, Jan-04.

2004 *(continued)*

- Draft Final Off-Site Groundwater Feasibility Study, URS Corporations, Omaha, NE, Mar-04.
- Draft Final Technical Memorandum Groundwater Flow and Contaminant Fate and Transport Modeling Off-Site Groundwater, URS Corporations, Omaha, NE, Mar-04.
- Final Line 2 Remedial Alternative Analysis, URS Corporations, Omaha, NE, Feb-04.
- Six Sites Feasibility Study Data Collection Monitoring Well and Staff Gauge Installation Documentation and Photo Log, URS Corporations, Omaha, NE, May-04.
- Final Fire Training Pit Groundwater Remedial Alternative Analysis, URS Corporations, Omaha, NE, May-04.
- Revised Draft Final Off-Site Groundwater Proposed Plan, URS Corporations, Omaha, NE, Jul-04.
- Final East Burn Pads Groundwater Remedial Alternative Analysis, URS Corporations, Omaha, NE, Jun-04.
- Final West Burn Pads Groundwater Investigation, URS Corporations, Omaha, NE, Jun-04.
- Draft Final Historical Records Review for Line 6, Line 800, Central Test Area, and Deactivation Furnace, T N & Associates, Inc., Oct-04.
- Draft Final Baseline Ecological Risk Assessment, Montgomery Watson Harza, Chicago, IL, Oct-04.
- Draft Final 2003 Groundwater Monitoring Report, Hydrogeologic, Lenexa, KS, Dec-04.

2005

- Draft Final Historical Records Review for Line 2, Line 3, Line 3A, Incendiary Disposal Area, Old Fly Ash Waste Pile, Possible Demolition Site, Explosives Waste Incinerator, Construction Debris Landfill, and Line 3A Pond, Shaw Environmental, Inc., Jan-05.
- Draft 2004 Groundwater Monitoring Report, Hydrogeologic, Lenexa, KS, Feb-05.
- Draft Final Treatability Study Test Plan for In Situ Biodegradation of On-Post Groundwater, Tetra Tech, Inc, Oak Ridge, TN, Apr-05.
- Draft Final Report for the Soil Data Collection at The Incendiary Disposal Area, Fly Ash Waste Pile, Possible Demolition Site, Line 3A Pond, Explosive Waste Incinerator and Construction Debris Landfill, MKM Engineers, Inc., May-05.
- Revised Draft Final Off-Site Groundwater Record of Decision, URS Corporations, Omaha, NE, May-05.
- Draft Final MEC Density Survey Report for Line 6 and the Central Test Area, MKM Engineers, Inc., May-05.
- Final Brush Creek Point Source Control Treatment System Design, Tetra Tech, Inc, Oak Ridge, TN, May-05.

Draft Final Addendum Remedial Action Report for the Fire Training Pit, Environmental Chemical Corporation, Burlingame, CA, Aug-05.

- Draft Final Operations and Maintenance Optimization Plan at the Inert Disposal Area, Line 1 Pond, and Line 800 Lagoon, Tetra Tech, Inc, Oak Ridge, TN, Sep-05.
- Draft Final Technical Memorandum Cesium Source Evaluation, Tetra Tech, Inc, Oak Ridge, TN, Sep-05.

2006

- Final, 5-Year Review Report, Tetra Tech, Mar-06

IOWA ARMY AMMUNITION PLANT

Installation Restoration Program

Site Descriptions

IAAP-002
LINE 2 AMMO LAP (ARTILLERY/SHAPED)

SITE DESCRIPTION

The IRP site consists of the contamination from past munitions production. Any contamination from current activities will be addressed under compliance (non-ER,A funding). The past contamination has resulted from the practice of washing spilled explosives from floors, equipment and sump failures.

Line 2 is a production line that has been in operation since the inception of IAAAP, except for a brief hiatus from 1947 to 1949, and occupies nearly 140 acres, including 31 buildings and covered walkways. It is used to load, assemble and pack 120 mm ammunition and blank ammunition. The melt building appears to be where the highest volumes of wastes were produced. The buildings include equipment rooms, explosives magazines and nine sump buildings.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
Metals, Explosives

MEDIA OF CONCERN:
Soil, Surface Water, Sediments

Phases	Start	End
PA	198901	199105
SI	198901	199108
RI/FS	199012	199605
RD	200406	200611
RA(C)	200406	200709

RC DATE: 200709

The PA/SI was completed in 1991, and an initial RI was completed in May 1996. The Interim Soil ROD requires the removal of an estimated 1950 cy (885 cy of metals only, 770 cy of explosives only, and 295 cy of metals and explosives) of soil contaminated with metals and explosives. Per the ROD, this soil will be taken to the Inert Disposal Area (IAAP-020) and sorted by contaminant level and type.

CLEANUP STRATEGY

This site is included in the PBC awarded in 2004. Based on the results of RD sampling, soils will be excavated and treated per the ROD.

IAAP-002G
LINE 2 AMMO LAP - GROUNDWATER

SITE DESCRIPTION

The IRP site consists of the groundwater contamination from past munitions production. Any contamination from current activities will be addressed under compliance (non-ER,A funding). The past contamination has resulted from the practice of washing spilled explosives from floors, equipment and sump failures.

Line 2 is a production line that has been in operation since the inception of IAAAP, except for a brief hiatus from 1947 to 1949, and occupies nearly 140 acres, including 31 buildings and covered walkways. It is used to load, assemble and pack 120mm ammunition and blank ammunition. The melt building appears to be where the highest volumes of wastes were produced. The buildings include equipment rooms, explosives magazines and nine sump buildings.

TNT and RDX in concentrations of up to 2 ppm have been found in the groundwater in shallow localized plumes within 30 feet of the ground surface.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
Explosives

MEDIA OF CONCERN:
Groundwater

Phases	Start	End
PA	198901	199105
SI	198901	199108
RI/FS	199012	200711
RD	200406	200711
RA(C)	200406	200711
RA(O)	200406	202711

RIP DATE: 200711
RC DATE: 202711

The PA/SI was completed in 1991, and an initial RI was completed in May 1996. A Supplemental RI was completed in 2003 to fill GW data gaps found in the RI, dated May 1996.

CLEANUP STRATEGY

This site is included in the PBC awarded in 2004. The remedial approach for this site, as well as others in the Brush Creek watershed will be assessed in the FS. At present, it is presumed that localized areas of contamination will be remediated.

IAAP-003
LINE 3 AMMO LAP (ARTILLERY)

SITE DESCRIPTION

The IRP site consists of the contamination from past munitions production. Any contamination from current activities will be addressed under compliance (non-ER,A funding). The practice during the early years of production was to dispose of wastewater at the Line 800 Pink Water Lagoon. This line was upgraded to include self-contained Pinkwater Reroute Systems in July 1995 and September 1998.

Line 3 is a production line that has been in operation since 1941, except for a short time between 1945 and 1949. This line fills and assembles artillery projectiles, occupies about 150 acres and consists of 26 buildings and covered walkways. The buildings include equipment rooms, explosives magazines, and nine sump buildings for explosive waste processing. The two melt buildings appear to be the areas where the highest volumes of wastes were produced during operations.

From 1977 to 1984, metal cleaning operations were conducted at Line 3. This process consisted of several stainless steel dip tanks where ammunition casings were immersed in a sulfuric/hydrochloric acid bath, followed by a chromic acid rinse, then rinsed with water. Sludge that accumulated in the bottom of the sulfuric acid tank was removed and treated with sodium hydroxide.

The Interim ROD requires the removal of an estimated 3,500 cy (550 cy of metals only, 1,880 cy of explosives only, 840 cy of metals and explosives, 110 cy of SVOCs and explosives, and 120 cy of Rad).

The PA/SI was completed in 1991, and an initial RI was completed in May 1996. The Interim ROD requires the removal of an estimated 3,500 cy of contaminated soil including 120 cy of soil that the Army now believes to contain radionuclides only at background levels. Per the ROD, this soil will be taken to the Inert Disposal Area (IAAP-020) and sorted by contaminant level and type.

Note: Building 3-01 will be addressed under FUSRAP.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN: Metals, Explosives, RAD, SVOCs

MEDIA OF CONCERN: Soil, Surface Water, Sediment

Phases	Start	End
PA	198901	199105
SI	198901	199105
RI/FS	199012	199605
RD	200408	200611
RA(C)	200406	200709

RC DATE: 200709

CLEANUP STRATEGY

This site is included in the PBC awarded in 2004. Based on the results of RD sampling soils will be excavated and treated per the ROD.

IAAP-003G
LINE 3 AMMO LAP - GROUNDWATER

SITE DESCRIPTION

The IRP site consists of the groundwater contamination from past munitions production. Any contamination from current activities will be addressed under compliance (non-ER,A funding). The practice during the early years of production was to dispose of wastewater at the Line 800 Pink Water Lagoon. This line was upgraded to include self-contained Pinkwater Reroute Systems in July 1995 and September 1998.

Line 3 is a production line that has been in operation since 1941, except for a short time between 1945 and 1949. This line fills and assembles artillery projectiles, occupies about 150 acres and consists of 26 buildings and covered walkways. The buildings include equipment rooms, explosives magazines, and nine sump buildings for explosive waste processing. The two melt buildings appear to be the areas where the highest volumes of wastes were produced during operations.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
Explosives

MEDIA OF CONCERN:
Groundwater

Phases	Start	End
PA	198901	199105
SI	198901	199108
RI/FS	199012	200711
RD	200406	200711
RA(C)	200406	200711
RA(O)	200406	202711

RIP DATE: 200711
RC DATE: 202711

From 1977 to 1984, metal cleaning operations were conducted at Line 3. This process consisted of several stainless steel dip tanks where ammunition casings were immersed in a sulfuric/hydrochloric acid bath, followed by a chromic acid rinse, then rinsed with water. Sludge that accumulated in the bottom of the sulfuric acid tank was removed and treated with sodium hydroxide.

RDX in concentrations of 0.5-2.2 ppm has been found in the groundwater in a shallow localized plume within 30 feet of the ground surface. Recent data shows a downward trend in groundwater concentrations.

The PA/SI was completed in 1991, and an initial RI was completed in May 1996. Supplemental RI work was completed in 2003 to better delineate groundwater contamination.

CLEANUP STRATEGY

This site is included in the PBC awarded in 2004. The remedial approach for this site, as well as others in the Brush Creek watershed will be assessed in the FS. At present, it is presumed that localized areas of contamination will be remediated.

IAAP-004
LINE 3A AMMO LAP (ARTILLERY)

SITE DESCRIPTION

The IRP site consists of the contamination from past munitions production. Any contamination from current activities will be addressed under compliance (non-ER,A funding). This line was upgraded to include a self-contained Pinkwater Reroute System in December 1996.

Line 3A was constructed in 1941 and began operations in 1943. The line was shut down from 1945 to 1949 then resumed operations until 1989. Line 3A encompasses 119 acres and is currently active. The line is a load, assemble and pack operation for 155mm artillery rounds. The melt building appears to be the area where the highest volumes of wastes were produced during operations.

Metal cleaning operations were conducted here. The process included several stainless steel dip tanks where ammunition casings were immersed in a sulfuric/hydrochloric acid bath, followed by a chromic acid bath and water rinsing.

The PA/SI was completed in 1991, and an initial RI was completed in May 1996. The Interim ROD requires the removal of an estimated 2,040 cy (1350 cy of explosives-contaminated soil only, and 690 cy of metals and explosives-contaminated soil). Per the ROD, this soil will be taken to the Inert Disposal Area (IAAP-020) and sorted by contaminant level and type.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN: Metals, Explosives

MEDIA OF CONCERN: Soil

Phases	Start	End
PA	198901	199105
SI	198901	199108
RI/FS	199012	199605
RD	200408	200611
RA(C)	200406	200709

RC DATE: 200709

CLEANUP STRATEGY

This site is included in the PBC awarded in 2004. Based on the results of RD sampling, soils will be excavated and treated per the ROD.

IAAP-004G
LINE 3A AMMO LAP - GROUNDWATER

SITE DESCRIPTION

The IRP site consists of the groundwater contamination from past munitions production. Any contamination from current activities will be addressed under compliance (non-ER,A funding). This line was upgraded to include a self-contained Pinkwater Reroute System in December 1996.

Line 3A was constructed in 1941 and began operations in 1943. The line was shut down from 1945 to 1949 then resumed operations until 1989. Line 3A encompasses 119 acres and is currently active. The line is a load, assemble and pack operation for 155mm artillery rounds. The melt building appears to be the area where the highest volumes of wastes were produced during operations.

Metal cleaning operations were conducted here. The process included several stainless steel dip tanks where ammunition casings were immersed in a sulfuric/hydrochloric acid bath, followed by a chromic acid bath and water rinsing.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
Explosives

MEDIA OF CONCERN:
Groundwater, Surface Water

Phases	Start	End
PA	198901	199105
SI	198901	199105
RI/FS	199105	200711
RD	200406	200711
RA(C)	200406	200711
RA(O)	200406	202711

RIP DATE: 200711
RC DATE: 202711

Two isolated, shallow plumes (RDX, low level) have been identified to date. The PA/SI was completed in 1991, and the initial RI was completed in May 1996.

CLEANUP STRATEGY

This site is included in the PBC awarded in 2004. The remedial approach for this site, as well as others, outside the Brush Creek watershed will be assessed in the FS. At present, it is presumed that localized areas of contamination will be remediated.

IAAP-007
LINE 6 AMMO PRODUCTION (DETONATOR)

SITE DESCRIPTION

The IRP site consists of the contamination from past munitions production. Any contamination from current or future activities will be addressed under compliance (non-ER,A funding).

Line 6 is a detonator production area encompassing 30 acres and located in the center of the installation. Constructed in 1941 and operated until 1981, this line is currently inactive. Line 6 consists of 34 buildings for the production, storage, and shipping of detonators, relays, and hand grenade fuses.

The primary waste stream was related to the production of detonators and included lead azide, lead styphnate, tetracene, RDX, barium nitrate and mercury fulminate. Treatment of black powder was performed in Building 6-68 as a RCRA permitted unit. This unit underwent RCRA closure in 1995 and will no longer be maintained or used by the Army (modified caretaker status). As part of the RCRA closure, 800 cy of contaminated soil were removed in 1994.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN: Metals

MEDIA OF CONCERN: Soil

Phases	Start	End
PA	197803	199105
SI	197803	199108
RI/FS	199012	200001
RD	200206	200611
RA(C)	200406	200709

RC DATE: 200709

The PA/SI was completed in 1991, and an initial RI was completed in May 1996. The Interim ROD requires the removal of approximately 445 cy of contaminated (metals) soil that was not addressed under the RCRA closure. This soil will be taken to the Inert Disposal Area (IAAP-020) and sorted by contaminant level and type. The principal concern at this site is the potential for surface runoff to migrate to nearby streams, which in turn recharge groundwater off post. Groundwater at the site shows no significant contamination. During the historical site assessment, it was determined there was a potential UXO concern at this site.

A Geophysical Density Survey for Munitions and Explosives of Concern (MEC) was performed at Line 6 in the fall of 2004 by MKM. The MEC density survey was performed using an electromagnetic metal detector to a depth of 4 ft. below ground surface. MEC avoidance procedures should be used during any sampling and clearance is required prior to any large scale soil removal.

The Army has determined that the facilities at this Line are excess and will pursue Non-ER,A funding for building demolition and debris removal, which is listed as an option in the PBC. Additional evaluation of soil beneath the slabs will be required after the demolition.

CLEANUP STRATEGY

This site is included in the PBC awarded in 2004. Based on the results of RD sampling, soils will be excavated and treated per the ROD. Additional work will be needed to remediate UXO at the site (MMRP site IAAP-02-R-01). NFA is expected for the groundwater (RI study May 21, 1996 - section 6.7).

IAAP-010G
LINE 9 AMMO LAP - GROUNDWATER

SITE DESCRIPTION

This site consists of the groundwater contamination from past munitions production. Any contamination from current or future activities will be addressed under compliance (non-ER,A funding).

Line 9 is about 9 acres in size and was built in 1942 for use as a production facility that produced mine and mine fuses during the Vietnam War. This Line is in modified caretaker status.
The PA/SI was completed in 1991, and an initial RI was completed in May 1996. During the Supplemental RI, completed in 2003, high levels of freon were found in groundwater.

Freon-113 in concentrations of up to 220 ppm has been found in the groundwater. The plume likely extends over approximately five acres, and has been found to produce concentrations that displace oxygen at levels that represent a risk to human health. This information has been provided to AO Safety.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
Freon, Explosives

MEDIA OF CONCERN:
Groundwater

Phases	Start	End
PA	198901	199105
SI	198901	199108
RI/FS	199012	200711
RD	200406	200711
RA(C)	200406	200711
RA(O)	200406	202711

RIP DATE: 200711
RC DATE: 202711

The Army has determined that the facilities at this Line are excess and will pursue non-ER,A funding for building demolition and debris removal, which is listed as an option in the PBC.

CLEANUP STRATEGY

This site is included in the PBC awarded in 2004. The remedial approach for this site, as well as others in the Brush Creek watershed will be assessed in the FS. At present, it is presumed that localized areas of contamination will be remediated.

IAAP-012G
EDA/EAST BURN PADS - GROUNDWATER

SITE DESCRIPTION

The Explosive Disposal Area (EDA) east burn pads, located in the northeast corner of IAAAP, consisted of 8 raised earthen burning pads enclosed in a fenced area of approximately 12 acres. Activities included open burning of explosives-contaminated metals, propellant ,explosives and pyrotechnic (PEP) contaminated materials. Each pad was bermed on three sides to restrict horizontal movement of metal projectiles. The pads were in operation from 1941 until 1982, when the Explosive Waste Incinerator was built.

The PA/SI was completed in 1991, and an initial RI was completed in May 1996. The Interim ROD required the removal of contaminated soil, and 8,270 cy of soil was removed in 1998 (funded as an IRA). This soil was taken to the Inert Disposal Area (IAAP-020) and sorted by contaminant level and type.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
Metals, Explosives, VOCs

MEDIA OF CONCERN:
Groundwater

Phases	Start	End
PA	198901	199105
SI	198901	199108
RI/FS	199012	200711
RD	200406	200711
RA(C)	200406	200711
RA(O)	200406	202711

RIP DATE: 200711
RC DATE: 202711

Low levels of explosives and VOCs have been found in shallow groundwater and upper bedrock (30 feet bgs).

CLEANUP STRATEGY

This site is included in the PBC awarded in 2004. The remedial approach for this site, as well as others, outside the Brush Creek watershed will be assessed in the FS. At present, it is presumed that localized areas of contamination will be remediated.

IAAP-013
INCENDIARY DISPOSAL AREA (EAST YARD D)

SITE DESCRIPTION

Based upon an interview with a former installation employee, this site was located east of Yard D and Spring Creek and north of K Road. It was used for incendiary material burial during the mid-1940s. It was believed to be small (approximately 40' x 60') and surrounded by a barbed wire fence. The exact size, location, and material buried at this site cannot be determined because there are no records of this activity ever being performed at the IAAAP. Some indications do exist that magnesium may have been the material disposed of at this site. Previous samples taken during the SI may not have been appropriately located. IAAP-013 will be expanded to include a cratered area found during a 2000 site walkover, located west of the Incendiary Disposal Area. These craters are approximately 4 ft wide and 2 ft deep and are spread over approximately 10 acres. A fence with "Danger" signs intersects the cratered area.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN: Metals, Explosives

MEDIA OF CONCERN: Soil

Phases	Start	End
PA	198901	199105
SI	198901	199108
RI/FS	200012	200712
RD	200408	200712
RA(C)	200408	200712

RC DATE: 200712

Additional soil and sediment samples were collected in 2004 by MKM and documented in the Draft Final Report for the Soil Data Collection. Elevated levels of Beryllium was detected above the background levels in multi-incremental shallow soil as determined in the OU1 Record of Decision as well as elevated levels of Lead detected in discrete shallow soil. This site was identified within the footprint of the East Training Area/Land Navigation Range which is considered an active range by MMRP. Further policy review is required to determine program applicability.

A draft supplemental RI was submitted to EPA for review in April 2006.

CLEANUP STRATEGY

This site is included in the PBC awarded in 2004. The recommendation of the draft supplemental RI is soil excavation.

IAAP-015
OLD FLY ASH WASTE PILE

SITE DESCRIPTION

The Old Fly Ash Waste Pile is located in the southeastern portion of the IAAAP. It was used to deposit fly ash from the Main Heating Plant and the building 1-62 Heating Plant from 1940 until 1976. It lies east of Plant Road H between Yards D and E. The eastern boundary of the site slopes steeply down to Brush Creek; the top of the site is approximately 40 feet vertical above the creek. Ash was dumped directly on the ground surface. Sludge from the Sewage Disposal Plant was placed on this site once or twice a year since the early 1940s. It is unclear when this practice stopped. There is no record of the amounts of ash or sludge placed here. The majority of the surface of the Fly Ash Waste Pile is vegetated. Surface runoff flows into Brush Creek.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN: Metals, Sulfates

MEDIA OF CONCERN: Surface Water, Sediment

Phases	Start	End
PA	198901	199105
SI	199012	199108
RI/FS	200012	200712

RC DATE: 200712

The PA/SI was completed in 1991, and the limited RI was completed in May 1996.

In 1999, it was discovered that the steep slope of this Old Fly Ash Waste Pile has begun to fall away into Brush Creek. It appears there may be an impact to Brush Creek. Further evaluation is necessary. Uncontrolled dumping of vegetation and solid waste, including tires, bricks, and 5-gallon cans, was found at this site in May 1999.

Additional soil, fly ash, sediment and groundwater samples were collected in 2004 by MKM and documented in the Draft Final Report for the Soil Data Collection. Elevated levels of Arsenic, Boron, and Lead were detected above background levels in groundwater as determined in the MCL.

A draft supplemental RI was submitted to EPA for review in April 2006.

CLEANUP STRATEGY

This site is included in the PBC awarded in 2004. The recommendation of the draft supplemental RI is no further action (NFA).

IAAP-016
LINE 1 FORMER WASTEWATER IMPOUNDMENT

SITE DESCRIPTION

This site consists of the Line 1 Former Wastewater Impoundment and up-gradient settling basins.

The Line 1 Former Wastewater Impoundment was formed by damming a portion of the upper reaches of Brush Creek. The primary function of the impoundment was to allow settling of particulate matter from explosives-contaminated wastewater from Line 1 (a former AEC and Army site) before it discharged downstream. This impoundment received large volumes of discharge from 1948 to 1957. The wastes included TNT, coal pile runoff, and condensate from the coal-fired power plant. Fly ash would be added to the impoundment liquid to absorb the explosives and reduce the color. It was estimated that the impoundment was 3.6 acres in size and as large as 7.5 acres (1,300 to 2,400 feet long) during periods of high flow. The embankment was breached after 1957; Brush Creek flowed through the breach and the former impounded area was allowed to re-vegetate naturally. RI work for the Impoundment area was completed in 1991.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN: Explosives

MEDIA OF CONCERN: Soil, Surface Water, Sediment, Groundwater

Phases	Start	End
PA	198901	199105
SI	198901	199108
RI/FS	199012	199610
RA(C)	199610	199709
RA(O)	199710	201209

RIP DATE: 199710
RC DATE: 201209

The Army Decision Document was approved in 1995, and the Action Memo was approved in 1996. A contaminated soils IRA was completed during 1997 when 8,270 cy of explosives-contaminated soils were excavated from this area. The excavated soils contained greater than 3,900 lbs. of explosives. This soil was taken to the Inert Disposal Area (IAAP-020) where it was separated by level of contamination. Approximately 1000cy of higher contaminated soil was placed in Trench 7 and will be treated as required by the ROD. The remainder was placed in a landfill without treatment.

This site has been converted into wetlands. Native plants containing the nitroreductase enzyme are being used to phytoremediate the surface water. Low levels of residual explosives remain in surface water within the impoundment, and they are treated with granular activated carbon prior to discharge into Brush Creek.

The FUSRAP PA identified this area as requiring additional investigation. In August 2004, FUSRAP conducted a screening survey of this site to determine if radiological contaminates from AEC activities are present in soil. Preliminary assessments of all screening results indicate no radiological contamination present at this area. Groundwater contamination hotspots were discovered in 2004.

IAAP-016
LINE 1 FORMER WASTEWATER IMPOUNDMENT

CLEANUP STRATEGY

This site is included in the PBC awarded in 2004. The remedial approach for groundwater at this site, as well as others in the Brush Creek watershed will be assessed in the FS. At present, it is presumed that localized areas of groundwater contamination will be remediated. Surface water management will continue.

IAAP-017
PESTICIDE PIT

SITE DESCRIPTION

The Pesticide Pit was in operation between 1968 and 1974 for the disposal of small quantities of insecticides and herbicides. This site is located approximately 25 feet east of the Winnebago School House (Bldg 500-30-6) on an upland terrace surrounded by agricultural fields. The School House is currently vacant and was fenced for safety reasons. The Pesticide Pit was a small plywood structure (8' x 8' x 3') lined with limestone and polyester resin geomembrane. However, the integrity of the structure that contained these wastes was questionable. The pit was capped with clay of unknown thickness during the late 1970s to early 1980s.

The PA/SI was completed in 1991, and the RI in May 1996.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN: Pesticides, Herbicides, Metals

MEDIA OF CONCERN: Soil, Groundwater

Phases	Start	End
PA	198901	199105
SI	198901	199105
RI/FS	199012	200712
IRA	199503	199606

RC DATE: 200712

In 1995 based on preliminary RI results, 144 cy of soils were excavated and the site was backfilled with pea gravel and clean soil. Follow-on groundwater sampling and analyses indicated all contaminants were below federal action levels. Remedial actions were completed in 1996. The soils were transported to an off-site incinerator for disposal.

USACHPPM has completed a review of the data and concurs with the recommendation that no further action is required for soils.

Spring 2001 and June 2004 groundwater sampling indicated slightly elevated levels of chromium.

CLEANUP STRATEGY

This site is included in the PBC awarded in 2004 and NFA is expected for the soil and groundwater. The soils will be addressed in the installation-wide OU4 ROD and groundwater will be addressed in the OU3 Groundwater ROD to provide proper closure documentation for the site.

IAAP-018
POSSIBLE DEMOLITION SITE (SOUTH YARD G)

SITE DESCRIPTION

This site was apparently used during the 1940s and possibly into the early 1950s as a demolition area for ammunition items. This demolition area was allegedly located South of Plant Road K near Yard G and across the road from the pistol range. There are no records to substantiate demolition activities or the kind of ammunition items treated at the site. The exact size of the site is also unknown, but is thought to be as big as 15 acres. Specific waste on the site is unknown. The SI sampling was completed in 1991 and no significant contamination was found.
This site appears to be larger then previously thought, and previous samples may not be representative of the site conditions.

Contaminants listed in the PA for this site included white and red phosphorus, as well as explosives and metals.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN: Explosives, Metals, Phosphorus

MEDIA OF CONCERN: Soil, Groundwater

Phases	Start	End
PA	198901	199105
SI	198901	199108
RI/FS	200107	200712
RD	200408	200712
RA(C)	200408	200712

RC DATE: 200712

Additional soil samples were collected in 2004 by MKM and documented in the Draft Final Report for the Soil Data Collection. Elevated levels of TNT and Lead were found in multi-incremental shallow soil above background levels as determined in the OU1 Record of Decision.

A draft supplemental RI was submitted to EPA for review in April 2006.

CLEANUP STRATEGY

This site is included in the PBC awarded in 2004. This site will also be evaluated during the 2006 MMRP Site Investigation.

The recommendation of the draft supplemental RI is soil excavation.

IAAP-020
INERT DISPOSAL AREA (PAGE 1 OF 2)

SITE DESCRIPTION

Soils from other Restoration sites are transported to the IDA for segregation according to health risk. Soils classified as a high health risk are placed in the CAMU (trench 7) to be held for treatment. The CAMU was designated by the EPA via a letter dated March 8, 1996. Those classified as a medium health risk are placed in a RCRA-type lined cell (trench 6) and soil that is classified as a low health risk are placed underneath the overall cap at the Inert Disposal Area (IDA).

The IDA encompasses approximately 20 acres that once included an Inert (sanitary) Landfill, a burning ground, a metal salvage operation, the Former Blue Sludge Lagoon, wastewater sludge drying bed, Cap Extension Area (CEA) and an earthen holding area formerly used to store sludge from Line 3 and Line 800. The IDA is located west of C Road, north of Line 3A in the west central part of the Installation.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN: Explosives, Metals

MEDIA OF CONCERN: Soil

Phases	Start	End
PA	197803	199105
SI	197803	199105
RI/FS	199012	199505
RD	199505	199508
IRA	198809	200001
RA(C)	199603	200908
RA(O)	200406	203909

RIP DATE: 200908
RC DATE: 203909

The Inert Landfill was in operation from 1941 to September 1992 and employed the trench and fill operation technique. Trenches 1 through 5 were filled primarily with sanitary landfill materials such as unsalvageable or unrecoverable materials (cafeteria and residential refuse and garbage, broken pallets, plastic, tin cans, and scrap wood/lumber paper, cardboard and asbestos insulation in double-lined plastic bags). Ash from open burnings and incinerations was also placed in the landfill. In 1980, a Part A Permit was received for the Inert Landfill and the Blue Sludge Lagoon. Interim status was granted that year. During 1997, a low-permeability synthetic cap was placed over Trenches 1 through 5 (approximately 17 acres). This area was seeded in 1998.

The lagoon holding area was closed in 1984 following the transfer of the blue sludge to a concrete-lined sludge drying bed, where it remained until January 1997. The excavated area was backfilled and capped with clay and a vegetative cover was established. In 1997 the blue sludge was excavated from this drying bed and deposited into Trench 6. Explosives- and metals-contaminated soils from a 1993/4 multi-site sump removal project were placed in Trench 6 in 1997.

The north end of Trench 5 contains special waste, such as ash from the Contaminated Waste Processor (CWP) (IAAP-024), Explosive Waste Incinerator (EWI) (IAAP-025), and open burning of explosives and explosives-contaminated wastes.

INERT DISPOSAL AREA (PAGE 2 OF 2)

SITE DESCRIPTION

This area was capped and the RCRA closure plan was completed in April 1988; the plan was amended in February 1997 to address sampling issues. Radionuclides were found in groundwater samples during 1997 routine sampling and were determined to be "within normal background levels for IAAAP" and within safe limits.

IRAs (soil removal and capping) at the Inert Disposal Area, Former Line 1 Impoundment Area (IAAP-016), and the Line 800 Lagoon (IAAP-044) were initiated in 1996 and completed in 1997.

Soil and debris from the burning grounds was placed underneath the Inert Landfill cap or in Trench 6, whichever was appropriate, based upon contamination levels. In 1997, the cap construction was completed over Trenches 1 through 5. Soils from the East Burn Pads, North Burn Pads, North Burn Pads Landfill and Fire Training Pit were placed into Trenches 6 or 7. VOC-contaminated soils from the Fire Training Pit were removed and treated via a Low Temperature Thermal Desorption (LTTD) unit at Trench 6. Trench 7 was designated as a CAMU by the EPA on March 8, 1996.

In FY02, approx. 6,000 cy of soil stored in the CAMU contaminated with explosives and metals were treated and segregated per the Interim Soil ROD.

An Explanation of Significant Differences (ESD) was signed in 2003, and specified enhanced biological treatment as the primary remedy for explosive-contaminated soils.

To date, approximately 190,000 cy of soil have been taken to the IDA. Four percent has undergone bio-treatment for soils, 1.5 percent has undergone thermal treatment, and nine percent has undergone stabilization for metals. It should be noted that a portion of this volume came from FUSRAP screening areas (IAAP-012, 032, 036, and 037).

During the August 2004 radiological screening of the IDA conducted by FUSRAP, one isolated area of radiological contamination was identified. This area was limited to a small object and the soils around the object (approximately one square yard). Analysis identified that the object contained Cesium-137. The soil where the object was found originated from remediation activities at the West Burn Pads Area (IAAP-032). The area was sufficiently covered with soil to eliminate exposure.

CLEANUP STRATEGY

This site is under the PBC awarded in 2004. Actions at this site will manage remediation waste awaiting treatment and capping, continue to receive contaminated soil from other sites, control and treat storm water and leachate and maintain existing cap.

After all contaminated soil has been treated, the plan is to excavate and move CAMU to Trench 6. Trench 6 and the CEA will be capped. After closure, leachate management and cap maintenance will continue. Programmed costs also include installation-wide groundwater monitoring.

IAAP-020G
INERT DISPOSAL AREA – GROUNDWATER

SITE DESCRIPTION

The IDA encompasses approximately 20 acres that once included an Inert (sanitary) Landfill, a burning ground, a metal salvage operation, the Former Blue Sludge Lagoon, wastewater sludge drying bed, CEA and an earthen holding area formerly used to store sludge from Line 3 and Line 800. The IDA is located west of C Road, north of Line 3A in the west central part of the Installation.

The Inert Landfill was in operation from 1941 to September 1992 and employed the trench and fill operation technique. Trenches 1 through 5 were filled primarily with sanitary landfill materials such as unsalvageable or unrecoverable materials (cafeteria and residential refuse and garbage, broken pallets, plastic, tin cans, and scrap wood/lumber paper, cardboard and asbestos insulation in double-lined plastic bags). Ash from open burnings and incinerations was also placed in the landfill. In 1980, a Part A Permit was received for the Inert Landfill and the Blue Sludge Lagoon. Interim status was granted that year. During 1997, a low-permeability synthetic cap was placed over Trenches 1 through 5 (approximately 17 acres). This area was seeded in 1998. The lagoon holding area was closed in 1984 following the transfer of the blue sludge to a concrete-lined sludge drying bed, where it remained until January 1997. The excavated area was backfilled and capped with clay and a vegetative cover was established. In 1997 the blue sludge was excavated from this drying bed and deposited into Trench 6. Explosives- and metals-contaminated soils from a 1993/4 multi-site sump removal project were placed in Trench 6 in 1997.

The north end of Trench 5 contains special waste, such as ash from the CWP (IAAP-024), EWI (IAAP-025), and open burning of explosives and explosives-contaminated wastes. This area was capped and the RCRA closure plan was completed in April 1988; the plan was amended in February 1997 to address sampling issues. Radionuclides were found in groundwater samples during 1997 routine sampling and were determined to be “within normal background levels for IAAAP” and within safe limits.

Groundwater monitoring began in 1994. Low levels of explosives, VOCs and metals have been found in shallow groundwater (30 feet bgs). High levels of PCP have been found in one well.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
Explosives, Metals, VOCs, SVOCs

MEDIA OF CONCERN:
Groundwater

Phases	Start	End
PA	197803	199105
SI	197803	199105
RI/FS	199012	200710
RD	200406	200710
RA(C)	200406	200908
RA(O)	200406	203909

RIP DATE: 200908
RC DATE: 203909

IAAP-020G
INERT DISPOSAL AREA – GROUNDWATER

CLEANUP STRATEGY

This site is under the PBC awarded in 2004. Complete further characterization of groundwater and prepare a FS/PP/ROD under OU4. RA(O) will be required until cleanup requirements are met.

IAAP-025
EXPLOSIVE WASTE INCINERATOR

SITE DESCRIPTION

The Explosive Waste Incinerator (EWI) was located in the southwest corner of the Explosive Disposal Area (IAAP-012). The EWI was within building BG-199-1 and contained an adjoining air pollution control system. The site treated explosive wastes, sump scrap, and explosives-contaminated waste solvents. Explosives-contaminated carbon was originally treated in the EWI, but is now recycled. Resultant ash was collected and managed as a hazardous waste. The EWI buildings and facilities underwent RCRA closure, and the incinerator was removed from the installation in 1999.

The PA/SI was completed in 1991, and an initial RI was completed in May 1996. One area (drainage ditch) had a detection of RDX at levels above cleanup criteria.

Additional soil and sediment samples were collected in 2004 by MKM and documented in the Draft Final Report for the Soil Data Collection. No analytes above the background levels as determined in the OU1 Record of Decision were detected.

A draft supplemental RI was submitted to EPA for review in April 2006.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN: Explosives, Metals

MEDIA OF CONCERN: Soil

Phases	Start	End
PA	198901	199105
SI	199012	199108
RI/FS	199012	200712

RC DATE: 200712

CLEANUP STRATEGY

This site is included in the PBC awarded in 2004. The recommendation of the draft supplemental RI is NFA.

IAAP-028
CONSTRUCTION DEBRIS LANDFILL (NW YARD O)

SITE DESCRIPTION

The Construction Debris Landfill is located in the central portion of the installation. Wastes were placed in a ravine with periodic soil cover. Waste included brick, stone, concrete, wire and 55-gallon drums. It is believed that this site was in operation from 1941 to September 1992. The site was originally reported to be 3 acres; after the initial RI, the site was determined to be 10 acres.
The PA/SI was completed in 1991, and the initial RI was completed in May 1996; no significant contamination was found.

It is believed that unauthorized dumping occurred at this site. Future sampling is recommended to characterize the site.

Additional soil and sediment samples were collected by MKM in 2004 to help determine the full extent of the site. This information is documented in the Draft Final Report for the Soil Data Collection. No analytes above the background levels as determined in the OU1 Record of Decision were detected. Material that appeared to be fly ash was encountered at 18 ft. below ground surface.

A draft supplemental RI was submitted to EPA for review in April 2006.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN: Explosives, Metals, Pesticides, PCBs

MEDIA OF CONCERN: Soil, Groundwater

Phases	Start	End
PA	198901	199105
SI	198901	199108
RI/FS	199012	200712
RD	200408	200712
RA(C)	200408	200712

RC DATE: 200712

CLEANUP STRATEGY

This site is included in the PBC awarded in 2004. The recommendation of the draft supplemental RI is soil excavation.

IAAP-032G
WEST BURN PAD AREA - GROUNDWATER

SITE DESCRIPTION

Due to the complexity in defining site boundaries, sites IAAP-032 (Burn Cages), IAAP-033 (Burn Cage Landfill), IAAP-034 (West Burn Pads), and IAAP-035 (West Burn Pads Landfill (WBPLF)), were incorporated into one site.

Burn cages were used for the incineration of inert and explosives-contaminated packaging. The flashing of metals parts also was performed here. The site was used from 1949 to 1982 when the cages were removed. Metal parts, munitions casings and staining on the ground surface were observed during the site inspection in 1991. Ash generated from the burn operations was disposed of in the adjacent landfills. The landfills are approximately three acres in size and heavily vegetated.

The West Burn Pads were used for metals flashing from 1949 to 1982. Ash from the Burn Cages and West Burn Pads were disposed of at the Burn Cage Landfill (1949 to 1982) and the WBPLF (1950 to 1975). The WBPLF also received waste from the East Burn Pads and well as various solid wastes to include sanitary and industrial.
This site consists of the contamination from past activities. Any contamination from current and future activities will be addressed with non-ER,A funding.

The PA/SI was completed in 1991, the RI was completed in 1996. Groundwater monitoring began in 1994. Relatively high levels of explosives and Freon have been found in groundwater after the soil removal was completed.

Low levels of explosives were detected in the creek south of the WBPLF during 2000. A Supplemental RI was completed in 2003, and a groundwater model was created in 2004.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
Explosives, Metals, VOCs

MEDIA OF CONCERN:
Groundwater

Phases	Start	End
PA	198901	199105
SI	198901	199108
RI/FS	199012	200711
RD	200406	200711
RA(C)	200406	200711
RA(O)	200406	202711

RIP DATE: 200711
RC DATE: 202711

CLEANUP STRATEGY

This site is included in the PBC awarded in 2004. The remedial approach for this site, as well as others, outside the Brush Creek watershed will be assessed in the FS. At present, it is presumed that localized areas of contamination will be remediated.

IAAP-039G
FIRE TRAINING PIT - GROUNDWATER

SITE DESCRIPTION

The former Fire Training Pit was an unlined pit that measured approximately 40 x 16 x 2 feet used from 1982 to 1987. During training sessions, 55-gallon drums of solvents and petroleum products were set ablaze, then extinguished by fire fighters.

The PA/SI was completed in 1991, the RI was completed in May 1996. Investigations found localized soil and groundwater contamination consists of significant quantities of VOCs (including chlorinated solvents), SVOCs, metals and low levels of dioxins and furans. Groundwater monitoring began in 1994.

High levels of VOCs in concentrations of greater than 30 ppm have been found in shallow groundwater and the upper bedrock (30 feet bgs). Groundwater contamination has migrated to the Spring Creek Tributary.

In 2003, the supplemental RI was completed and documented in a Remedial Alternative Analysis document.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
VOCs, SVOCs, Metals

MEDIA OF CONCERN:
Groundwater

Phases	Start	End
PA	198901	199105
SI	198901	199108
RI/FS	199012	200711
RD	200406	200711
RA(C)	200406	200711
RA(O)	200406	202711

RIP DATE: 200711
RC DATE: 202711

CLEANUP STRATEGY

This site is included in the PBC awarded in 2004. The remedial approach for this site, as well as others outside the Brush Creek watershed will be assessed in a single FS. At present, it is presumed that localized areas of contamination will be remediated.

IAAP-041
LINE 3A POND

SITE DESCRIPTION

Line 3A Pond is assumed to be an excavated, unlined pit, measuring approximately 60 x 30 x 8 feet. The pond area is relatively flat and slopes gently to the west and south. While some sources conflict on this fact, it is generally believed that this site was excavated and backfilled circa 1959.

At Line 3A, casings for bombs were treated with an alkaline de-greaser and solvent paint stripper. The casings were then bathed in phosphoric acid. A diluted chromic acid rinse was then applied. Approximately 15,000 gallons of spent sulfuric and hydrochloric acid were disposed of in the pond and neutralized with sodium hydroxide.
The PA/SI was completed in 1991, the RI was completed in May 1996; samples found no explosives or metals above action levels in the soil.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN: Explosives, Metals

MEDIA OF CONCERN: Soil, Groundwater

Phases	Start	End
PA	198901	199105
SI	198901	199108
RI/FS	199012	200712
RD	200408	200712
RA(C)	200408	200712

RC DATE: 200712

USACHPPM has completed a review of the data and concurs with the recommendation that no further action is required for soils.

Additional soil samples were collected in 2004 by MKM and documented in the Draft Final Report for the Soil Data Collection. No analytes above the background levels as determined in the OU1 Record of Decision were detected.

A draft supplemental RI was submitted to EPA for review in April 2006.

CLEANUP STRATEGY

This site is included in the PBC awarded in 2004.
The recommendation of the draft supplemental RI is possible groundwater treatment.

IAAP-044
LINE 800 & PINKWATER LAGOON

SITE DESCRIPTION

The Line 800 Pinkwater Lagoon consisted of an unlined, 5 acre impoundment, 4 feet deep, surrounded by an earthen berm. This lagoon was located adjacent to Line 800 (IAAP-011) and an intermittent tributary to Brush Creek. The primary activity at Line 800 was ammunition renovation from 1943 to 1980. From 1980 to present, primary activities at Line 800 include remote disassembly of projectiles and assembly of 75 mm and 105 mm blanks. The Pinkwater Lagoon was constructed in 1943 for the disposal of pinkwater effluent from adjacent Line 800 production facilities and sludges trucked in from other line operations within the installation. In 1943, leaching fields associated with the lagoon to include evaporation furrows were constructed. The lagoon also received metal cleaning sludge from Line 3 operations. In the 1970s, this lagoon ceased to be used.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS: Explosives, Metals

MEDIA OF CONCERN: Soil

Phases	Start	End
PA	197803	199105
SI	197803	199105
RI/FS	199012	199605
IRA	199603	200009
RD	200206	200611
RA(C)	200406	200709

RC DATE: 200709

Studies conducted in 1991 through 1998 indicated that primary waste disposed at the site included explosives-contaminated wash water and heavy metals from operations at Line 800 and other production lines. Carbon and fly ash disposal may also have occurred at the site. As a result of the RI sampling 63,236 cy of explosives-contaminated soils were excavated from this area during 1997. The excavated soil contained greater than 80,000 lbs of explosives. This soil was taken to the Inert Disposal Area (IAAP-020) and sorted by contaminant level and type.

Two additional areas of explosives soil contamination were found in 1998. One area in the southwest portion of the lagoon was found to require no action. The other area, in settling basin #1, requires additional characterization and excavation.

The lagoon currently is used as a phytoremediation wetlands treatment cell.

The Army has determined that the facilities at this Line are excess and will pursue Non-ER,A funding for building demolition and debris removal, which is listed as an option in the PBC. Additional evaluation of soil beneath the slabs will be required after the demolition.

CLEANUP STRATEGY

This site is included in the PBC awarded in 2004. Based on the results of RD sampling, soils will be excavated and treated per the ROD.

IAAP-044G
LINE 800 & PINKWATER LAGOON - GROUNDWATER

SITE DESCRIPTION

The IRP site consists of the groundwater contamination from past activities.

The Line 800 Pinkwater Lagoon consisted of an unlined, 5 acre impoundment, 4 feet deep, surrounded by an earthen berm. This lagoon was located adjacent to Line 800 (IAAP-011) and an intermittent tributary to Brush Creek. The primary activity at Line 800 was ammunition renovation from 1943 to 1945. The Pinkwater Lagoon was constructed in 1943 for the disposal of pink water effluent from adjacent Line 800 production facilities and sludges trucked in from other line operations within the installation. In 1943, leaching fields associated with the lagoon to include evaporation furrows were constructed. The lagoon also received metal cleaning sludge from Line 3 operations. In the 1970s this lagoon ceased to be used.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
Explosives

MEDIA OF CONCERN:
Groundwater

Phases	Start	End
PA	197803	199105
SI	197803	199105
RI/FS	199012	200711
RD	200406	200711
RA(C)	200406	200711
RA(O)	200406	202711

RIP DATE: 200711
RC DATE: 202711

Studies conducted in 1991 through 1998 indicated that primary waste disposed at the site included explosives-contaminated wash water and heavy metals from operations at Line 800 and other production lines. Carbon and fly ash disposal may also have occurred at the site. As a result of the RI sampling 63,236 cy of explosives-contaminated soils were excavated from this area during 1997. The supplemental GW RI was completed in July 2001.
High levels of explosives in concentrations of greater than 30 ppm have been found in shallow groundwater (up to 30 feet bgs).

Groundwater discharges into a tributary of Brush Creek.

CLEANUP STRATEGY

This site is included in the PBC awarded in 2004. The remedial approach for this site, as well as others in the Brush Creek watershed, will be assessed in the FS.

IAAP-046
OFF POST CONTAMINATION

SITE DESCRIPTION

Historical discharges of explosive-contaminated wastewater have resulted in surface water and groundwater contamination off-post, mainly the Brush Creek watershed.

In 1993, off-post contamination of private drinking water wells with explosives (RDX and 2,6 DNT) was confirmed. The IAAAP contracted to connect residents in the contaminated area to the public water supply. This Remedial Action was designed to eliminate the pathway of future exposures to contaminated drinking water and was completed in the fall of 1994. IAAAP is investigating groundwater contamination both on and off-post. The off-post efforts were accelerated in 1998 due to increased stakeholder interest.

High levels (up to 150 ug/L) of RDX were detected in the Brush Creek watershed approximately 2 miles off-post.

In 2001, IAAAP provided connection to Rathbun Regional Water to 34 homeowners who declined in 1993. The total number of homes connected to the Rathbun Regional Water supply is 188.

The FS and proposed plan were completed in 2004. The preferred alternative is enhanced bioremediation.

During annual groundwater sampling in 2003, groundwater was analyzed by FUSRAP for radionuclides. Only naturally occurring isotopes were detected.

The ROD for off-post groundwater was signed in 2005.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
Explosives

MEDIA OF CONCERN:
Groundwater, Surface Water

Phases	Start	End
PA	198505	198510
SI	199209	199305
RI/FS	199906	200509
RD	200406	200609
IRA	199305	200110
RA(C)	200406	200709
RA(O)	200406	201709

RIP DATE: 200709
RC DATE: 201709

CLEANUP STRATEGY

This site is included in the PBC awarded in 2004. The remedy will consist of an enhanced degradation system with monitored natural attenuation with institutional and engineering controls.

IAAP-047
CENTRAL TEST AREA (PAGE 1 OF 2)

SITE DESCRIPTION

The Central Test Area was used to test fire hand grenades, adaptor boosters, and aerial mines. Very little historical documentation is available on this particular site, but layout drawings are dated back as far as 1943. It is not known exactly when this area was in operation.

Detonations were performed in the field north and east of the Central Test Area. Steel fixtures still exist at this site. Historical documentation indicated that this area is 800 ft northeast of the Central Test Area laboratory.
Approximately 500 ft northwest of Line 4A and 1,200 ft south of Line 5B, but still within the fence line of Line 5, lies Building 600-84. This building was constructed in 1941 and is considered part of the Central Test Area. The walled-in area northeast of the building was used as a test site for the inside charge of grenades. This charge was composed of lead styphynate, black powder, and tetryl booster. The outer charge was TNT and RDX.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN: Explosives, Metals

MEDIA OF CONCERN: Soil, Groundwater

Phases	Start	End
PA	198901	199105
SI	198901	199108
RI/FS	200406	200712
RD	200406	200712
RA(C)	200406	200712

RC DATE: 200712

A test pit existed approximately 815 ft to the northeast of Building 600-84. The test pit was approximately 9 ft x 14 ft with wooden walls covered by steel plates. The floor was earthen with a concrete walkway. A concrete pedestal capped by a steel plate was anchored in the floor of the pit. Soil was sloped up the walls to a height of approximately 5 ft. An operator's building was located 105 ft southwest of the test-fire pit. Only limited information about the operations in this pit can be found.

A small area to the west of the test pit area contains a metal triangular stand or tripod used to hold components to be test detonated.

During the historical site assessment, it was determined there was a potential Munitions and Explosives of Concern (MEC) concern at this site. A Geophysical Density Survey for MEC was performed at the Central Test Area in the fall of 2004 by MKM. The MEC density survey was performed using an electromagnetic metal detector to a depth of 4 ft. below ground surface. MEC construction support is recommended for the two identified concentrated areas prior to performing any intrusive activity. For all other areas at this site, avoidance procedures should be used during any sampling and clearance is required prior to any large scale soil removal.

A draft supplemental RI was submitted to EPA for review in April 2006.

IAAP-047
CENTRAL TEST AREA (PAGE 2 OF 2)

CLEANUP STRATEGY

This site is included in the PBC awarded in 2004. Based on the results of RD sampling, soils contaminated above ROD cleanup levels will be excavated and treated per the ROD. Additional work may be needed to evaluate or remediate MEC at the site (MMRP site IAAP-01-R-01).

The recommendation of the draft supplemental RI is soil excavation.

PBC AT IOWA

SITE DESCRIPTION

This site was created to address funding information for the PBC for Iowa AAP. The period of performance for this contract is 10 years beginning in 2004.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN: NA

MEDIA OF CONCERN: NA

Phases	Start	End
PA	200308	200308
RA(C)	200406	201109
RA(O)	201110	201409

RIP DATE: 201110
RC DATE: 201409

POTENTIAL AREAS OF CONCERN

In January 2000, a former worker reported that he recalled seeing a “Danger, TNT burial site” sign. A site walk was completed by USACHPPM and the installation in March 2000, but the sign was not located. The area will be sampled if it is located. If contamination is detected, it will be evaluated for IRP eligibility.

During 2001, a former worker provided information on a potential site with unknown buried material northeast of Line 8. No evidence of soil disturbance or ground scarring has been found in this area. This site has not been located. If contamination is detected, it will be evaluated for IRP eligibility.

IRP No Further Action Sites Summary

AEDB-R#	Site Title	Documentation/Reason for NFA	NFA Date
IAAP-001	Line 1 Ammo LAP (Missile/Former AEC)	Designated FUSRAP, July 02	200207
IAAP-005	Line 4A and 4B Ammo Assembly	Phase 4 Soil Remedial Action Report. Contamination not found above action levels.	200508
IAAP-006	Line 5A & 5B Ammo Assembly	Phase 2 Soil Remedial Action Report. Soil removal complete	199911
IAAP-008	Line 7 Ammo LAP (Fuze/Blank)	Contamination not found above action levels. Confirmation sampling conducted after building deconstruction in Jan 2006.	199605
IAAP-009	Line 8 Ammo LAP (Fuze/Rocket)	Phase 4 Soil Remedial Action Report. Contamination not found above action levels.	200508
IAAP-010	Line 9 Ammo LAP (Mine)	Phase 4 Remedial Action Report. Soil removal complete.	200508
IAAP-011	Line 800 Ammo Reno	Combined with IAAP-044 (Soil) Groundwater will be addressed under IAAP-044G	200009
IAAP-012	Explosive Disposal Area (East Burn Pads)	Phase 1 Soil Remedial Action Report. Soil Removal Complete	199812
IAAP-014	Boxcar Unloading Area	NFA per PA/SI	199108
IAAP-017	Pesticide Pit	Rapid Response After Action Report and GW Monitoring Report. Soil Removal complete and GW contaminants below action levels.	200303
IAAP-019	Contaminated Clothing Laundry	Transferred to Compliance Clean Up Program.	200402
IAAP-021	Demolition Area/Deactivation Furnace	Transferred to Compliance Clean Up Program	200402
IAAP-022	Unidentified Substance (Oil) Waste Site	Per PA/SI	199108
IAAP-024	Contaminated Waste Processor	Transferred to Compliance Clean Up Program	200402
IAAP-026	Sewage Treatment Plant/ Drying Beds	Transferred to Compliance Clean Up Program	200402
IAAP-027	Fly Ash Landfill (New Bldg 400-139)	Transferred to Compliance Clean Up Program	200402
IAAP-029	Line 3A Sewage Treatment Plant/Dry Beds	Transferred to Compliance Clean Up Program	200402
IAAP-030	Firing Site Area	Designated FUSRAP, July 02	200207
	The ammo box chipper pit should be returned to the active site as Tt plans to trench the site in yet another		

AEDB-R#	Site Title	Documentation/Reason for NFA	NFA Date
	attempt to find it at the EPA's request.		
IAAP-032	Burn Cages BCLF West Burn Pads WBPLF	Phase 1 and Phase 3 Soil Remedial Action Report (north side of the road). Soil removal complete. (South side of the road designated FUSRAP in July 02)	200212
IAAP-036	North Burns Pads (2) (Near IAAP-024)	Phase 1 Remedial Action Report. Soil removal complete.	200303
IAAP-037	North Burn Pads Landfill	Phase 1 Remedial Action Report. Soil removal complete.	199812
IAAP-038	Building 600-86 Septic System	Remedial Investigation Report and substantiated by Comprehensive Watershed Evaluation dated Oct 2005. Contamination not above action levels or pathways not complete.	199605
IAAP-039	Fire Training Pit	Draft Addendum RA Report for Fire Trng Pit. Soil removal complete.	200409
IAAP-040	Roundhouse Transformer Storage Area	Phase 4 Soil Remedial Action Report. Contamination not found above action levels.	200508
IAAP-042	Abandoned Coal Storage Yard	Per PA/SI	199310
IAAP-043	Fly Ash Disposal Area	Transferred to Compliance Clean Up Program	200402
IAAP-045	Former Fuel Station USTs	NFA approved by State of Iowa	200208

IRP Schedule

Initiation of IRP: 1989

Past Phase Completion Milestones

1992

- IAAP-042, Abandoned Coal Storage Yard: Removal completed, the area was backfilled and vegetated with native grasses.

1994

- The Army connected off-post residents south of the Plant to a rural water supply thereby removing the exposure pathway of contaminants to them.

1995

- Removal Actions at the Pesticide Pit and Explosive Sumps were completed under Rapid Response Program.
- Soils from the Pesticide Pit were transported to an approved off-site incinerator.
- Soils from the sumps were temporarily held and subsequently placed in Trench 6 of the Inert Landfill in 1997.

1996

- The RI was completed.
- Corrective Action Management Unit was completed.

1997

- Over 80,000 cy of soil was removed from the Former Line 1 Impoundment Area and the Line 800 Pinkwater Lagoon.
- Soils from the sumps which were excavated in 1995 and stored at the IDA were placed into Trench 6.
- Blue sludge which was also stored at the IDA was placed in Trench 6.

1998

- Capped 5 cells at the IDA.
- Removed impacted soil from East Burn Pads and the North Burn Pads.
- Completed Bio-Slurry Study.
- Completed Humic Polymer Study.
- Began Supplemental RI activities for Eco-risk, Line 800 Pinkwater lagoon, and other areas.
- Signed Interim and Final RODs.

1999

- Completed soil removals at the East Burn Pads.
- Completed soil removals at the Fire Training Pit.
- Completed soil treatment of Fire Training Pit soil.
- Conducted small field study of Low Temperature Thermal Desorption treatment for explosive contaminated soils.

- Placed monitoring wells around Corrective Action Management Unit (IDA Trench 7).
- Placed 11 Long Term Monitoring Wells.

2000
- Completed Soil Removal at the West Burn Pad Area
- Completed Cap Extension for the Inert Disposal Area
- Completed Soil Removal around Production Buildings at Lines 5A/5B

2001
- No Removal or remedial Actions were completed this year
- Army connected 34 residents south of the plant to rural water supply. These connections were for residents who refused service in 1994

2002
- Completed Treatment of WBPA Soils
- Completed Soil Removal at the Former Fuel Station

2003
- Completed Supplemental Soil Removal at the Fire Training Pit

2004
- Obtained NFA Certificate from State of Iowa for Former Fuel Station
- Completed remedial actions for Phase IV soil sites

2005
- Completed Record of Decision for Off-Post Groundwater

2006
- Complete Soil Excavation Remedial Actions at remaining OU-1 Sites

Projected Record of Decision (ROD)/Decision Document (DD) Approval Dates:
OU3 :2007
OU4: 2008

Projected Construction Completion Date of IRP: 2011

Projected Date for Removal from NPL: Unknown

Schedule for Next Five-Year Review: 2009

Estimated Completion Date of IRP (including LTM phase): 2039

Iowa AAP IRP Schedule

(based on current funding constraints)

AEDB-R #	Phase	FY07	FY08	FY09	FY09	FY10	FY11	FY12	FY13	FY14	FY15+
IAAP-020	RA(C)										
	RA(O)										203909
IAAP-046	RA(O)										
PBC at Iowa	RA(C)										
	RA(O)										201409

Prior Year Funds

Total Funding up to FY04: **$80,450K**

FY05 Prior Year Funds

Site Information	Expenditures	FY Total
IAAP-002	$.76K	
IAAP-003	$2K	
IAAP-004	$2K	
IAAP-013	$2K	
IAAP-015	$2K	
IAAP-018	$2K	
IAAP-020	$8.52K	
IAAP-025	$2K	
IAAP-028	$2K	
IAAP-041	$2K	
IAAP-044G	$2.74K	
IAAP-046	$23.65K	
PBC at Iowa	$8898.52K	**$8,950.19K**

Total Prior Year Funds: **$89,400.19K**

Current Year (FY06) Requirements

Site Information	Expenditures	FY Total
		$5713.955K

Total Future Requirements: **$16,602K**

Total IR Program Cost *(from inception to completion of the IRP):* **$111,716.14K**

IOWA ARMY AMMUNITION PLANT

Military Munitions Response Program

MMRP Summary

Total AEDB-R MMRP Sites/AEDB-R sites with Response Complete: 3/0

AEDB-R Site Types

2 Unexploded Munitions/Ordnance

1 Open Burning/Open Detonation (OB/OD)

Most Widespread Contaminants of Concern: MEC

Media of Concern: Soil

Completed REM/IRA/RA: None

Total MMRP Funding

Prior years (up to FY05):	$ 0
Current Year (FY06):	$ 152,503
Future Requirements (FY07+):	$4,225,000
Total:	$4,407,503

Duration of MMRP

Year of MMRP Inception: 2003
Year of MMRP RIP/RC: 2017
Year of MMRP Completion Including LTM: 2047

MMRP Contamination Assessment

MMRP Contamination Assessment Overview

The Phase 3 Army Range Inventory was completed at the Iowa Army Ammunition Plant in October 2003. The inventory identified three sites as eligible for the MMRP, the Central Test Area, the Line 6 Ammo Production and the West Burn Pads. The Phase 3 inventory serves as the Preliminary Assessment under CERCLA. A Site Inspection is scheduled in FY07.

Although the North Burn Pads is a potential MMRP site,
there are no plans to address this site under MMRP as all soil actions have previously been conducted under the IRP.

The IAAAP has requested that two sites ((the Possible Demolition Site (PDS) (IAAP-018) and the Incendiary Disposal Area (InDA) (IAAP -013)) be included in the MMRP. These sites were not included in the Closed Transferring and Transferred Range/Site Inventory (CTT Range Inventory), completed in 2003, because there was little available information on the sites. In 2004, MKM investigated these sites and found MEC concerns, as documented in their Draft Final Soils Data Collection Report, 2005. The PDS has been accepted by the MMRP to be included in their 2006 Site Investigation. The InDA is located in an Active/Inactive range, per the CTT Range Inventory, and is therefore ineligible for the MMRP. The IAAAP has requested that this site be removed from the Active/Inactive range in order to make the site eligible.

MMRP Cleanup Exit Strategy

The installation plans to complete all SI's by 2007 and execute follow on phases/actions as required in the individual site cleanup strategies.

2003

Final Closed, Transferred and Transferring Range/Site Inventory Report, E2M, Inc., 200310

IOWA ARMY AMMUNITION PLANT

Military Munitions Response Program

Site Descriptions

IAAP-001-R-01
CENTRAL TEST AREA

SITE DESCRIPTION

The Central Test Area is located in the north-central portion of Iowa AAP within the Line 5 IRP site boundary. Line 5 is identified as AEDB-R site number IAAP-006. This test area was used from approximately 1943 through 1963 for the testing of hand grenades, landmines and adapter boosters. A test pit and tripod were located in this area. The test pit had an earth floor surrounded by wooden walls covered by steel plates. A concrete stand was located in the pit. The tripod area consists of a metal triangular stand, which was used to hold components to be test detonated. Limited information is currently known about the operations that took place in the central test area. No known UXO responses have been conducted at this site. The central test area is 15.16 acres in size and is currently undeveloped.

STATUS

REGULATORY DRIVER: CERCLA

RAC Score: Serious Risk

CONTAMINANTS OF CONCERN:
MEC

MEDIA OF CONCERN:
Soil

Phases	Start	End
PA	200305	200310
SI	200603	200709
RI/FS	201410	201509
RD	201510	201609
RA(C)	201610	201709
LTM	201710	204709

RC DATE: 201709

A Geophysical Density Survey for Munitions and Explosives of Concern (MEC) was performed at the Central Test Area in the fall of 2004 by MKM. The MEC density survey was performed using an electromagnetic metal detector to a depth of 4 ft. below ground surface. MEC construction support is recommended for the two identified concentrated areas prior to performing any intrusive activity. For all other areas at this site, avoidance procedures should be used during any sampling and clearance is required prior to any large scale soil removal.

CLEANUP STRATEGY

A SI will be performed. Based on the results of the SI, further investigation, remediation, or NFA will be performed.

IAAP-002-R-01
LINE 6 AMMO PRODUCTION

SITE DESCRIPTION

This site consists of buildings 6-34-2 and 6-92 located in the Line 6 Ammo Production area. The Line 6 Ammo Production Area is located near the center of Iowa AAP and was used for the production, storage and shipping of detonators, primers, relays, delays, hand grenade fuzes, and mines. Line 6 is identified as AEDB-R site number IAAP-007. Production Building 6-34-2 was used to load detonators. The northern end of the building was used to assemble detonators and the southern end was used for loading black powder into a component known as a candlestick. There was also a room for component storage. An explosion occurred in the southern half of the building in November 1968 from loading black powder. Unexploded detonators were found scattered around the area. All visible detonators were recovered at that time.

STATUS

REGULATORY DRIVER: CERCLA

RAC Score: Moderate Risk

CONTAMINANTS OF CONCERN:
MEC

MEDIA OF CONCERN:
Soil

Phases	Start	End
PA	200305	200310
SI	200603	200709

RC DATE: 200709

Component Rumble Building 6-92 was used to clean explosives residue from the newly completed components, such as detonators and relays. Components were mixed with hot sawdust and placed into a rumble machine. The sawdust was removed by vibration. The components were then placed in boxes and sent to the inspection and shipping building. An explosion occurred in this building in February 1970. All visible components were recovered at that time. Another visual inspection was recently conducted of the area in preparation for sewer line construction. No UXO was found during this inspection. This site is 95.21 acres in size and is currently inactive.

A Geophysical Density Survey for MEC was performed at Line 6 in the fall of 2004 by MKM. The MEC density survey was performed using an electromagnetic metal detector to a depth of 4 ft. below ground surface. MEC avoidance procedures should be used during any sampling and clearance is required prior to any large scale soil removal.

The Army has determined that the facilities at this Line are excess and will pursue Non-ER,A funding for building demolition and debris removal, which is listed as an option in the PBC.

CLEANUP STRATEGY

A SI will be performed, NFA is expected.

IAAP-003-R-01
WEST BURN PADS

SITE DESCRIPTION

The West Burn Pads are located in the northeast corner of Iowa AAP and are 6.98 acres in size. This site was used from 1949 through 1982 for flashing of metals contaminated with explosives. This site has been combined with burn cages and a landfill to form AEDB-R site number IAAP-032. Soil is the only media expected to be addressed.

In 2000, the IRP program performed a remedial action on the contaminated soil at IAAP-032. Approximately 46,000 CY of soil were excavated from the site to depths exceeding four feet. No evidence of munitions or bulk explosives was discovered. After completion of this removal action, an area of potentially contaminated soil located across the road that served as the site's southern boundary was discovered. In 2001 it was discovered that the West Burn Pads areas was used by both IAAAP and the former Atomic Energy Commission. Prior to further investigation by the IRP program, the newly discovered southern portion of the West Burn Pads was designated by the U.S. Army Corps of Engineers to be a site under the Formerly Utilized Sites Remedial Action Program (FUSRAP).

STATUS

REGULATORY DRIVER: CERCLA

RAC Score: Serious Risk

CONTAMINANTS OF CONCERN:
MEC

MEDIA OF CONCERN:
Soil

Phases	Start	End
PA	200305	200310
SI	200603	200710
RI/FS	201410	201509
RD	201510	201609
RA(C)	201610	201709
LTM	201710	204709

RC DATE: 201709

FUSRAP will respond to all releases and threats of releases of hazardous substances, pollutants or contaminants for the West Burn Pads area south of the road, with the exception of ground and surface water contamination.

When the MMRP conducted their PA of the West Burn Pads, the area south of the road was not yet discovered.

No known UXO responses have been conducted at this site. The West Burn Pads north of the road are currently undeveloped. The area south of the road contains several structures including bunkers and buildings.

CLEANUP STRATEGY

A SI will be performed. Based on the results of the SI, further investigation, remediation, or NFA will be performed.

MMRP Schedule

Initiation of MMRP: 2003

Past Phase Completion Milestones

2003
• PA, Oct

Projected ROD/DD Approval Dates: 2015

Projected Construction Completion: 2017

Schedule for Five Year Reviews: To be determined

Estimated Completion Date of MMRP including LTM: 2047

Iowa AAP MMRP Schedule

(based on current funding constraints)

AEDB-R #	Phase	FY07	FY08	FY09	FY09	FY10	FY11	FY12	FY13	FY14	FY15+
IAAP-001-R-01	SI										
	RI/FS										
	RD										201609
	RA(C)										201709
	LTM										204709
IAAP-002-R-01	SI										
IAAP-003-R-01	SI										
	RI/FS										
	RD										201609
	RA(C)										201709
	LTM										204709

Prior Years Funds

Total Funding up to FY04: $0

Total Funding up to FY05: $0

Current Year Requirements (FY06)

Site Information	Expenditures	FY Total
SI	$152,503	**$152,503**

Total Future Requirements: **$4,255,000**

Total MMR Program Cost *(from inception to completion of the MMRP):* **$4,407,503**

Community Involvement

A Restoration Advisory Board (RAB) was established in August 1997. The RAB has been very active since its inception by meeting approximately every two months to receive training and provide input to the environmental restoration process. Members are from the surrounding towns of Burlington, West Burlington, Danville, Farmington and Wever. Government members are from the Installation, the U.S. Environmental Protection Agency, and the State of Iowa. The RAB continues to review documents, provides input to the community relations plan, and helps establish project priorities.

A separate program and Citizens' Advisory Board has been formed by the Department of Energy (DOE) to address health-related issues of former Atomic Energy Commission workers.

The Installation maintains an administrative record at the locations listed below:

1. Danville City Hall, 105 West Shepherd Street, Danville, IA 52623
2. Lee County Health Department, 2218 Avenue H, Fort Madison, IA 52627
3. Burlington Public Library, 501 North 4th, Burlington, IA 52601